REMARKS

The Office Action dated June 1, 2004, has been received and carefully considered. In this response, claims 22 and 23 have been added. Entry of added claims 22 and 23 is respectfully requested. Reconsideration of the outstanding objections and rejections in the present application is also respectfully requested based on the following remarks.

At the outset, Applicants note with appreciation the indication on page 5 of the Office Action that claims 4, 5, 11, 13, 16, and 21 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants have opted to defer rewriting the above-identified claims in independent form pending reconsideration of the arguments presented below with respect to the rejected claims.

I. THE ANTICIPATION REJECTION OF CLAIMS 1, 6-10, 14, 15, 17-20

On pages 2-4 of the Office Action, claims 1, 6-10, 14, 15, and 17-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by Maddux et al. (U.S. Patent No. 6,421,801). This rejection is hereby respectfully traversed.

Under 35 U.S.C. § 102, the Patent Office bears the burden of presenting at least a prima facie case of anticipation. In re

Sun, 31 USPQ2d 1451, 1453 (Fed. Cir. 1993) (unpublished). Anticipation requires that a prior art reference disclose, either expressly or under the principles of inherency, each and every element of the claimed invention. Id.. "In addition, the prior art reference must be enabling." Akzo N.V. v. U.S. International Trade Commission, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). That is, the prior art reference must sufficiently describe the claimed invention so as to have placed the public in possession of it. In re Donohue, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his own knowledge to make the claimed invention." Id..

Regarding claim 1, the Examiner asserts that Maddux et al. teaches the claimed invention. However, it is respectfully submitted that the Examiner has failed to present at least a prima facie case of anticipation of claim 1 based upon Maddux et al.. For example, claim 1 recites both a transmit circuit comprising a transmit repeating pattern generator producing a repeating pattern signal such that the transmit circuit produces a transmit data output signal at a transmit data output based on the repeating pattern signal when the transmit circuit is operating in a test mode, and a receive circuit comprising a receive repeating pattern generator producing the repeating pattern signal such that the receive circuit produces a comparison signal based on a comparison dependent on the transmit data output signal and the repeating pattern signal when the receive circuit is operating in the test mode. Maddux et al. fails to claim, disclose, or even suggest such an arrangement. Indeed, Maddux et al. only discloses a single data generator 780 in a single circuit block 705.

Since Maddux et al. fails to claim, disclose, or even suggest the above-described arrangement, then it follows that Maddux et al. also fails to claim, disclose, or even suggest the receive circuit producing a comparison signal based on a comparison dependent on the transmit data output signal and the repeating pattern signal when the receive circuit is operating in the test mode, as claimed.

Maddux et al. further fails to claim, disclose, or even suggest both a transmit circuit producing a transmit data output signal at a transmit data output based on a transmit data input signal from a transmit data input when the transmit circuit is operating in a normal mode, and a receive circuit producing a receive data output signal at a receive data output based on the transmit data output signal when the receive circuit is operating in the normal mode, as claimed. This is particularly true since the receive circuit is operably coupled to the transmit circuit and receives the transmit data output signal from the transmit circuit at a receive data input regardless of whether the transmit/receive circuit is operating in the normal mode or a test mode, as claimed. In contrast, Maddux et al. fails to claim, disclose, or even suggest any such type of arrangement.

Accordingly, it is respectfully submitted that claim 1 is neither anticipated by, nor obvious in view of, Maddux et al..

Regarding claim 9, the Examiner asserts that Maddux et al. teaches the claimed invention. However, it is respectfully submitted that the Examiner has failed to present at least a prima facie case of anticipation of claim 9 based upon Maddux et al.. For example, claim 9 recites <u>both</u> generating a transmit repeating pattern in a transmit circuit, <u>and</u> generating a receive repeating pattern in the receive circuit. Maddux et al. fails to claim, disclose, or even suggest such a methodology. Indeed, Maddux et al. only discloses a single data generator 780 in a single circuit block 705.

Furthermore, since Maddux et al. fails to claim, disclose, or even suggest <u>both</u> generating a transmit repeating pattern in a transmit circuit, <u>and</u> generating a receive repeating pattern in the receive circuit, as discussed above, then Maddux et al. also obviously fails to claim, disclose, or even suggest comparing the transmit repeating pattern to the receive repeating pattern to obtain a comparison, as claimed.

Accordingly, it is respectfully submitted that claim 9 is neither anticipated by, nor obvious in view of, Maddux et al..

Claims 6-8, 10, 14, 15, and 17-20 are dependent upon independent claims 1 and 9. Thus, since independent claims 1 and 9 should be allowable as discussed above, claims 6-8, 10, 14, 15, and 17-20 should also be allowable at least by virtue of their dependency on independent claims 1 and 9. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination. For example, claim 6 recites that the transmit data output signal is capable of representing two bits of information simultaneously over a single conductor. The Examiner points to Figure 4 of Maddux et al. for a showing of this claimed feature. However, nowhere in Figure 4 of Maddux et al., nor elsewhere in Maddux et al., is such a feature disclosed or even suggested. Similarly, Maddux et al. fails to claim, disclose, or even suggest the claimed features of adjusting a receiver characteristic of the receive circuit (claim 17), wherein the receiver characteristic is selected from a group consisting of a receiver circuit timing signal and a voltage reference (claim 18), determining boundary values of the receiver characteristic within which reliable operation of the system is provided (claim 19), and adjusting a parameter affecting operation of the transmit circuit based on the boundary values (claim 20). Accordingly, it is respectfully submitted that claims 6-8, 10, 14, 15, and 17-20 are neither anticipated by, nor obvious in view of, Maddux et al..

In view of the foregoing, it is respectfully requested that the aforementioned anticipation rejection of claims 1, 6-10, 14, 15, and 17-20 be withdrawn.

II. <u>THE OBVIOUSNESS REJECTION OF CLAIMS 2, 3, AND 12</u>

On page 4 of the Office Action, claims 2, 3, and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Maddux et al. (U.S. Patent No. 6,421,801) in view of Chao et al. (U.S. Patent No. 6,671,847). This rejection is hereby respectfully traversed.

As stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Also, as stated in MPEP § 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Further, as stated in MPEP § 2143.03, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). That is, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). Additionally, as stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Finally, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Regarding claims 2, 3, and 12, the Examiner acknowledges that Maddux et al. fails to disclose the features recited therein, but then asserts that Chao et al. teaches these features and thus claims 2, 3, and 12 would have been obvious in view of the combination of Maddux et al. and Chao et al..

Claims 2, 3, and 12 are dependent upon independent claims 1 and 9. Thus, since independent claims 1 and 9 should be allowable as discussed above, claims 2, 3, and 12 should also be allowable at least by virtue of their dependency on independent claims 1 and 9. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination. For example, claim 2 recites that the transmit repeating pattern generator comprises a transmit shift register and the receive repeating pattern generator comprises a receive shift register. As discussed above, Maddux et al. only discloses a single data generator 780 in a single circuit block 705, not both a transmit repeating pattern generator and a receive repeating pattern generator. Similarly, Maddux et al. and/or Chao et al. fail to claim, disclose, or even suggest the claimed features of both the transmit shift register output of the transmit shift register being coupled to a transmit shift register input of the transmit shift register when the transmit circuit is operating in the test mode, and a receive shift register output of the receive shift register being coupled to a receive shift register input of the receive shift register when the receive circuit is operating in the test mode (claim 3). Accordingly, it is respectfully submitted that claims 2, 3, and 12 would not have been obvious in view of the combination of Maddux et al. and Chao et al..

At this point it should be noted that claims 22 and 23 have been added similar to claims 12 and 13, but relating to generating a receive repeating pattern in the receive circuit instead of generating a transmit repeating pattern in the transmit circuit. Based upon the arguments presented above, it is respectfully submitted that Maddux et al. and/or Chao et al.

fail to claim, disclose, or even suggest the features recited in added claims 22 and 23.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 2, 3, and 12 be withdrawn.

III. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

Hunton & Williams LLP

By: ______________________
Thomas E. Anderson
Registration No. 37,063

TEA/vrp

Hunton & Williams LLP
1900 K Street, N.W.
Washington, D.C. 20006-1109
Telephone: (202) 955-1500
Facsimile: (202) 778-2201

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